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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/896,589	06/29/2001	Peter Zhu	ASP-0028	7899

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EXAMINER

WITHERSPOON, SIKARL A

ART UNIT	PAPER NUMBER
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1621

DATE MAILED: 01/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/896,589

Applicant(s)

ZHU ET AL.

Examiner

Sikarl A. Witherspoon

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15, 18, 19, 21-34 and 37 is/are rejected.
- 7) ☒ Claim(s) 16, 17, 20, 35, 36 and 38 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other:

### DETAILED ACTION

Upon further review of the present claims, the Examiner has decided to examine all claims together. As such, the telephonic restriction requirement made by the Examiner on December 11, 2002 has been withdrawn. An Office Action on the merits follows.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7, 9, 18, 21-23, 26, 28, and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Honda et al (JP 50006158). Honda et al discloses a process wherein wastewater, containing formaldehyde at a pH of 4.3, is neutralized with sodium hydroxide (NaOH). The resulting water was distilled to obtain water containing 27 ppm formaldehyde at a pH of 6.9 (see abstract). For the claims that are drawn to a system for making neutralized aldehydes (claims 21-23, 26, 28 and 37), the "container" is being treated as any vessel (apparatus) that would enable the claimed neutralization process to occur. Although Honda et al does not specifically mention the type of vessel that is used in their process, it is inherent that the reaction is taking place in some type of reaction vessel. As such, Honda et al anticipates the instant claims.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7-15, 18, 19, 27, and 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riedel et al (U.S. 6,137,013) and Honda et al (JP 50006158) in combination, and further in view of De Micheli et al (U.S. 4,390,727).

Applicants claim a method and system for making a neutralized aldehyde of lessened toxicity by providing an  $\alpha$ -hydrogen-free aldehyde, and contacting the aldehyde with a base to render the treated aldehyde neutralized and less toxic compared with the untreated aldehyde. Further limitations include the aldehyde being selected from o-phthalaldehyde, formaldehyde, or mixtures thereof; the base comprising at least one hydroxide group; the hydroxide group being produced from a chemical reaction; and the treated aldehyde having a pH that may be adjusted according to the instant claims.

Riedel et al teaches a method of stabilizing aliphatic aldehydes having from 3 to 14 carbon atoms by the addition of alkaline substances, such as alkali metal and alkaline earth metal hydroxides (see abstract). The preferred stabilizing compounds are potassium and sodium hydroxide (col. 3, lines 28-31).

The differences between Riedel and the present invention are that Riedel does not specifically stabilize the same aldehydes as applicants, and does not mention the pH of the stabilized aldehyde, nor how the pH may be adjusted.

Honda et al, however, teaches that formaldehyde may be neutralized with sodium hydroxide. A pH change from 4.3 to 6.9 is noted (see CAPLUS abstract). De Micheli et al teaches a process for preparing stable aqueous suspensions of formaldehyde in the presence of "conventional" stabilizing agents, and adjusting the pH of the aqueous solution of aldehyde. The pH may be adjusted using alkaline agents, acids, such as sulfuric acid, or organic acids, such as formic acid and acetic acid (abstract and col 2, lines 44-66). The water constituting the aqueous solution may also affect the pH.

It would have been obvious to one of ordinary skill in the art, at the time the present invention was made, to combine Riedel et al with Honda et al. Since both references teach the use of hydroxides, specifically sodium hydroxide, to neutralize aldehydes, the artisan would have been motivated to combine the teachings to expand on the types of aldehydes that may be neutralized using sodium hydroxide; i.e., the aliphatic aldehydes taught by Riedel, and the  $\alpha$ -hydrogen-free aldehyde (formaldehyde) taught by Honda et al. The motivation to combine Riedel and Honda with De Micheli et al is found in Honda et al, wherein a pH change of 4.3 to 6.9 is noted. However, Honda doesn't specifically recite how the pH may be adjusted. De Micheli clearly teaches that mineral and organic acid may be used to adjust the pH of an aqueous suspension of formaldehyde.

Claims 5, 6, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riedel and Honda, and further in view of De Micheli, as applied to claims 1-4, 7-15, 18, 19, 27, and 29-34 above, and further in view of The Merk Index, 11<sup>th</sup> Edition.

The instant claims specify that at least one hydroxide group is produced from a chemical reaction, specifically, a reaction wherein a metal reacts with water. None of the previously cited references teaches how the sodium hydroxide used in the neutralization of the aldehydes is produced. However, it is well known in the art that when a metal, such as sodium, lithium, potassium, etc., reacts with water (vapor), a metal hydroxide is formed. See page 1363 of the Merk Index, wherein sodium hydroxide is listed as compound 8575, and it teaches that sodium hydroxide may be prepared from sodium metal and water vapor at low temperature. As such, such a limitation is obvious to one of ordinary skill in the art.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 8 recites the limitation "wherein the molar ratio of sodium hydroxide to o-phthalaldehyde..." in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim, because claim 8 depends on claim 7,

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which depends ultimately on claim 1; however, claim 1 does not specifically mention o-phthalaldehyde.

### ***Claim Objections***

Claims 20 and 38 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternate only. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claims 16, 17, 35, and 36 are objected to as being dependent on a rejected base claim.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikarl A. Witherspoon whose telephone number is 703-605-1206. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 703-308-4532. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-4556 for regular communications and 703-308-4556 for After Final communications.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.

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Sikarl A. Witherspoon  
Patent Examiner  
Technology Center 1600

January 23, 2003

A handwritten signature in cursive script, appearing to read "Samuel Barts", is written over a horizontal line.

Samuel Barts

Primary Patent Examiner

Technology Center 1600